LABORATORY QUALITY ASSURANCE

(615) 262-6354

The Laboratory Quality Assurance (LQA) section is involved in a wide range of environmental activities concerning air and water monitoring.

Air Pollution Monitoring

For approximately twenty-five years, the LQA section has been charged with evaluating the performance of air pollution monitoring equipment operated by state, federal, and local governments, as well as numerous industries statewide. At any given time up to 225 monitors are involved in either continuous sampling for sulfur dioxide, nitrogen dioxide, carbon monoxide, ozone, fluoride, or intermittent sampling for inhaleable particulates and lead. Federal law mandates the assessment of each of these monitors on a regular, usually quarterly, basis. This assessment is required to ensure that all data relative to the quality of our air is submitted to the National Data Bank in a fashion that meets specific standards for accuracy, precision, completeness, and comparability.

The process of evaluating an ambient air monitor starts with using a certified standard to calibrate a field unit. The field unit is then used to verify the operation of the air monitor. To facilitate this procedure, a standards laboratory is operated and maintained by LQA. Records showing the traceability and comparability of the field units to the standards are maintained to eliminate the possibility of questions concerning the audits.

The verification of proper operation of the ambient air monitor is the first step of several in the evaluation process.

Each site is reviewed according to specific citing criteria. The evaluation steps are:

- Verification of operating an ambient air monitor.
- Evaluation of each monitor for proper installation and operation.
- Review of records at each site.
  - Calibrations
  - Site visits
  - Problems that have occurred
  - Other information

For the four county programs operating their own monitoring networks, all data submitted to the state and federal data banks are reviewed by LQA for the accuracy, precision, completeness and comparability previously noted. Each local program must undergo a "systems audit" of all facilities, data handling, and reporting systems on an annual basis. The qualification for participation in air monitoring audits is established by the Director of Air Pollution Control.

Laboratory Certification Program

LQA also administers the Laboratory Certification Program as set forth by the Safe Drinking Water Act. This program was established according to Environmental Protection Agency (EPA) guidelines for which the Division of Water Supply has accepted primacy. This certification is for in-state and out-of-state laboratories that analyze drinking water samples for chemical, microbiological, and radiological contaminates. Currently some 110 in-state labs and 90 out-of-state laboratories maintain certification in Tennessee for Safe Drinking Water parameters.

Each in-state lab is regulated through triennial on-site inspections and participation in the analysis of performance evaluation samples submitted to the laboratories by the US EPA.

The out-of-state labs must submit to an annual review of all documents relative to their certifications in their home states. This information includes on-site evaluations of their laboratories, copies of their certifications, performance evaluation samples, quality assurance plans and other pertinent information. The packet is evaluated for applicability for Tennessee approval.